

What is claimed is:

- 1        1. A lithium secondary battery comprising:  
2            a case;  
3            an internal electrode body positioned inside said case, said internal electrode body  
4            comprising at least one positive electrode, at least one negative electrode and at least one  
5            separator interposed between said positive electrode and said negative electrode, said positive  
6            electrode and said negative electrode being electrically insulated from each other;  
7            at least one electrolyte contained inside said case;  
8            a first terminal electrically connected to said negative electrode;  
9            a second terminal electrically connected to said positive electrode; and  
10          at least one insulator positioned between said case and at least one of said first and  
11          second terminals, said insulator comprising ethylene-propylene rubber.
- 1        2. A lithium secondary battery as recited in claim 1, wherein said insulator has a  
2            surface hardness of from 30 (durometer A) to 60 (durometer D).
- 1        3. A lithium secondary battery as recited in claim 1, wherein said case comprises a  
2            body member and at least a first end cap, said first end cap being positioned at a first end of  
3            said body member, said insulator being positioned between said first terminal and said first  
4            end cap.
- 1        4. A lithium secondary battery as recited in claim 3, wherein said body member is  
2            generally cylindrical.
- 1        5. A lithium secondary battery as recited in claim 3, wherein said body member has a  
2            first crimped portion in which said first end cap is clamped.
- 1        6. A lithium secondary battery as recited in claim 1, wherein said case comprises a  
2            body member, a first end cap and a second end cap, said first end cap being positioned at a  
3            first end of said body member, said second end cap being positioned at a second end of said

1 body member, said internal electrode body being positioned between said first and second end  
2 caps, said insulator being positioned between one of said first and second terminals and an  
3 adjacent one of said first and second end caps.

7. A lithium secondary battery as recited in claim 6, wherein said body member is generally cylindrical.

8. A lithium secondary battery as recited in claim 6, wherein said body member has a first crimped portion in which said first end cap is clamped, and a second crimped portion in which said second end cap is clamped.

9. A lithium secondary battery as recited in claim 6, wherein said at least one insulator is positioned between said first end cap and said first terminal, and a second insulator is positioned between said second end cap and said second terminal.

10. A lithium secondary battery as recited in claim 1, wherein said insulator material has a volume resistivity of at least  $10^{10} \Omega\text{-cm}$ .

11. A lithium secondary battery comprising:

1 a body member;

2 an internal electrode body positioned inside said body member, said internal electrode  
3 body comprising at least one positive electrode, at least one negative electrode and at least  
4 one separator interposed between said positive electrode and said negative electrode, said  
5 positive electrode and said negative electrode being electrically insulated from each other;

6 at least one electrolyte contained inside said body member;

7 a first terminal electrically connected to said negative electrode;

8 a second terminal electrically connected to said positive electrode;

9 at least one end cap; and

10 at least one insulator positioned between said body member and said at least one end  
11 cap, said insulator comprising ethylene-propylene rubber.

1           12. A lithium secondary battery as recited in claim 11, wherein said body member is  
2       generally cylindrical and said at least one end cap is positioned at a first end of said body  
3       member.

1           13. A lithium secondary battery as recited in claim 12, wherein said body member has  
2       a first crimped portion in which said first end cap is clamped.

1           14. A lithium secondary battery as recited in claim 11, wherein said at least one end  
2       cap is positioned at a first end of said body member, said battery further comprising a second  
3       end cap positioned at a second end of said body member, said internal electrode body being  
4       positioned between said first end cap and said second end cap.

1           15. A lithium secondary battery as recited in claim 14, wherein said body member is  
2       generally cylindrical.

1           16. A lithium secondary battery as recited in claim 14, further comprising a second  
2       insulator positioned between said second end cap and said body member, said second  
3       insulator comprising ethylene-propylene rubber.

1           17. A lithium secondary battery as recited in claim 14, wherein said body member has  
2       a first crimped portion in which said first end cap is clamped, and a second crimped portion  
3       in which said second end cap is clamped.

1           18. A lithium secondary battery as recited in claim 11, wherein said insulator material  
2       has a volume resistivity of at least  $10^{10}$   $\Omega\text{-cm}$ .

1           19. A lithium secondary battery as recited in claim 11, wherein said insulator has a  
2       surface hardness of from 30 (durometer A) to 60 (durometer D).